

REMARKS

Applicants and their representative would like to thank the Examiner for taking the time to speak with them on Wednesday, February 12, 2003, in an Examiner interview.

Claims 1-12 and 14 are pending in the above-referenced application, claim 13 having been canceled by a previous amendment.

Claim 8 was rejected under 35 USC §112 as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Specifically, the Examiner states that "...the specification explicitly discloses that a 'user may access the short-term memory via the audiovisual user navigation interface'..."

However, the specification discloses that "A search engine 50 can be used via the audiovisual user navigation module interface 48 for information retrieval from *long-term storage* [emphasis added]," at page 15, lines 8-10. The user navigation module interface can retrieve information from *both* short-term storage and long-term storage. Having shown that the subject matter of claim 8 is described in the specification, Applicants respectfully request withdrawal of this objection.

Claim 1 was rejected under 35 USC §102(e) as being anticipated by Ramaswamy (US Patent No. 6,295,647). Applicants respectfully disagree.

The Examiner states that Ramaswamy references "teaches that the context editor is utilized to 'identify key clips of audiovisual information' wherein the instant application broadly defines key clips as including other relevant information..." However, as amended, claim 1 specifically defines key clips as containing one of either key events or key objects as defined by a viewer. This is supported in Applicant's specification at page 5, line 20 through page 6, line 19, among other places. The reference to authoring key clips is supported at page 10, lines 4 through 17, among other places.

As the executable code segments inserted in the video broadcast in Ramaswamy are not the same as the key clips upon which the key-clip data is based, Applicants submit that claim 1 is patentably distinguishable over the prior art and request allowance of this claim.

Claims 1 and 7 are rejected under 35 USC §102(e) as being anticipated by Srinivasan, et al. (US Patent no. 6,357,042). Applicants respectfully disagree.

Srinivasan is directed to an authoring system for inserting annotations into video streams, such as text, thumbnails, etc. The Examiner states that Srinivasan includes 'key clip data' of a defined metadata format. However, the metadata that is added to the video is not 'key clip' data, with regard to how key clips are now defined in Applicants' claim 1. Further, the system of Applicants' amended claim 1 requires that the data service authoring subsystem author the key clips, which is not shown, taught nor suggested by Srinivasan. Srinivasan merely addresses adding annotations and identifying events in a video broadcast by adding information. In addition, Srinivasan does not transmit the data broadcast service in such a manner that allows the user to customize it at the client receiver.

Further Srinivasan does not use any descriptors in MPEG PSIP to correspond to the key clips of the instant application. Srinivasan makes a general reference to MPEG, but does not teach, show nor suggest the use of the PSIP descriptor constructs in the metadata, nor does Srinivasan teach that there is a direct correlation between the descriptors used and the PSIP descriptors. Therefore, Applicants submit that claim 1 is patentably distinguishable over the prior art and request allowance of this claim.

With regard to claim 7, Applicants submit that claim 7 should be ruled allowable for the reasons as applied to claim 1. Additionally, Srinivasan does not show that the key clips, as that term is now defined in Applicant's claim 1, should be identified including their content. Srinivasan does include events, such as touchdowns (see column 28, lines 65-67), it does not include a defined set of key clips of either key events or key objects. The events

documented and annotated in Srinivasan are any event that occurs, not a defined key event or key object, nor does Srinivasan coordinate descriptors from MPEG PSIP data to descriptors in the key clip data. Therefore, Applicants submit that claim 7 is patentably distinguishable over the prior art and request allowance of this claim.

Claims 2-6 are rejected under 35 USC §103(a) as being unpatentable over Srinivasan, et al. (US Patent No. 6,357,042). Applicant respectfully disagrees.

With regards to claims 2-3 and 5-6, Srinivasan does not disclose the use of MPEG-2 presentation time stamps for referencing key-clips as the term key-clips is defined in claim 1, from which these claims depend. The advantage of using MPEG-2 reference methods is in the standardization, where any receiver/client that is MPEG-2 compliant can utilize the time references as discussed on page 10, line 16 through page 11, line 16; page 12, line 10 through line 22; and page 13, line 13, through line 23, depending upon the situation in which the video content was provided. Srinivasan mentions using a presentation time stamp that could be any type of presentation time stamp, not the MPEG-specific time stamps and constructs claimed by Applicant. Therefore, Applicant submits that claims 2-3 and 5-6 are patentably distinguishable over the prior art and request allowance of this claim.

With regard to claim 4, the Examiner states that it would be obvious to incorporate a video reference generator for the purposes of referencing video frames to real time PCR information. However, as described in Applicants' specification at page 12, lines 4 through 22, the video reference generator generates references to key clips, not just 'video frames.' As Srinivasan does not use key-clips as defined in Applicants' claim 1, nor does Srinivasan use the MPEG-2 PCR construct, Applicants submit that claim 4 is patentably distinguishable over the prior art and request allowance of this claim.

Claims 8-11 are rejected under 35 USC §103(a) as being unpatentable over Sezan, et al. (US Patent No. 6,236,395) in view of Barton, et al. (US Patent No. 6,233,389). Applicant respectfully disagrees.

Claim 8 requires that the receiver have both a short-term memory for storage of the summaries and long-term storage of both programs and summaries. Storage of the summaries in short-term storage versus long-term storage has an advantage in that short-term storage is generally faster than long-term storage, as there is less content to search through in summaries than if there were also archived programs and their related information. Sezan does not disclose the flexibility of having both short-term storage and long-term storage. Given the advantage of having both, including the flexibility of the dual nature of the memory, it would not be obvious to include both.

Further, the Sezan reference is directed to a descriptor scheme that does not have a summarizer with an inference engine that also extracts key clips using references in the broadcast. The Examiner directs the Applicants to the analysis module 42 and the description scheme generation module 44 and the text at column 8, lines 21-67. The referenced text depicts the operation of the analysis module to generate summaries using several sources of information. However, there is no reference to extracting key clips using the references supplied in the broadcast, as the summarizer is operable to do in Applicants' claim 8. As the extraction using references provided has several advantages over having to generate these summaries using detailed video analysis techniques, Applicants submit that claim 8 is patentably distinguishable over the prior art and request allowance of this claim.

During the interview, the Examiner referred again to the analysis module of the Sezan reference as being equivalent to the inference engine. Applicants believe the Examiner may be confused as to the inputs to the analysis module of the Sezan reference. In the Sezan reference, the audiovisual broadcast information coming into the receiver 38 is relatively

untouched. The receiver also receives all of the auxiliary information such as web site information, EPG, etc., and passes these data streams to the analysis module, which in turn produces a data stream of the audiovisual program melded with all of the supplementary information. Applicants' invention, as claimed in claim 8, operates on a data stream that is equivalent to what comes out of the analysis module 42, not what comes out of the receiver 38. There is no structure in Sezan that operates further on the output of analysis module 42 that performs any functions or has the capabilities of the inference engine of Applicants' invention.

Further, Applicants' invention as claimed in claim 8 require that inference engine to extract the key-clip data and the PSIP information in which there is a direct correspondence between the two. For these reasons, Applicants submit that claim 8 is patentably distinguishable over the prior art and request allowance of this claim.

Claims 9-11 depend from claim 8 and should be ruled allowable for this reason and for their own merit. With regard to claim 9, Sezan and Barton in combination do not show a receiver with a decoding and demultiplexing module to produce program-related information, as program-related information is defined in claim 8, for within program filtering of audiovisual programs, where the receiver also includes both short-term and long-term storage. While the claims are construed in light of the specification, if the Applicant provides a specific definition in the specification, the words of the claim must be given that definition *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed Cir. 1989), *In re Vogel*, 422 F.2d 438, 441, 164 USPQ 619, 622 (CCPA 1970). Applicants have defined within-program filtering to be based upon key events and key objects (Specification, page 5, lines 11-14), and Sezan and Barton do not show such a definition for within-program filter. Therefore, Applicants submit that claim 9 is patentably distinguishable over the prior art and request allowance of this claim.

With regard to claim 10, Sezan and Barton do not show that program-related information further comprises description information used as indices for archival of audiovisual programs in conjunction with long-term storage and short-term storage. More than likely, the storage of program-related information for database indexing would occur in the long-term storage. However, there is no analogy to such long-term storage in Sezan, as discussed above. The combination, in Sezan, merely mentions a storage unit and a filtering and browsing module that may be used to store/archive programs. There are several manners in which the Sezan description scheme could implement storing and archiving. There is no mention of a database, or using a description scheme as the indices for a database as is claimed in claim 10. Therefore, Applicants submit that claim 10 is patentably distinguishable over the prior art and request allowance of this claims.

With regard to claim 11, Sezan and Barton do not show a receiver where a register of user preferences used to create summaries that can be stored in both long-term and short-term storage. Further, the combination does not show a receiver where user preferences are used not only by a summarizer module but also by the decoding and demultiplexing module to account for user preferences at the intake of an MPEG-2 encoded audiovisual program with its associated PSIP data and references to key-clips. The combination does not show extraction of the key-clips based upon the references in the broadcast, which has several advantages as point out above. Therefore, Applicants submit that claim 11 is patentably distinguishable over the prior art and request allowance of this claim.

Claims 12 and 14 are rejected under 35 USC §103(a) as being unpatentable over Sezan, et al.

The Examiner states that analysis module of Sezan is equivalent to the program summarizer that is operable to receive a data broadcast filtering and generating summaries of audiovisual programs. As has been discussed at length above, the inference engine of the

instant application would operate on the output of the analysis module, as the existence of a data broadcast similar to the output of the analysis module is already assumed in the instant application. Further, the analysis module of Sezan does not extract key-clip data and PSIP information where those two have descriptors within each that directly correspond to each other.

Applicants are confused as the Examiner's reference to *Casey*, as the structures set forth in the claim *are not* shown in Sezan, as discussed with regard to claim 8, and there is no mention in Sezan of adapting them to perform the tasks of the instant application and therefore must have resulted in a structural difference in the claimed invention. Further, there must be some suggestion in the cited reference to produce the claimed invention. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). The Sezan reference is very specific in what the program summarizer is capable of, and there is no mention, reference or suggestion of that having a description extraction module or an inference engine.

Additionally, Component 76 in Sezan is described as a key-frame summarizer. See col. 8, line 54. A component that produces key-frame summaries is not the same as a key clip extraction module that extracts key clips from an audiovisual program. Applicants had mis-named the key-clip extraction module a key-clip extraction table in a typographic error. However, in referring to Figure 5, it can be seen that the component is a key-clip extraction module. If the Examiner's position were that a key-frame summary is the same as a key-clip, then it would follow that the summaries of Sezan are vastly different than the summaries of the Applicants' invention as claimed. If the Examiner acknowledges that they are different, then the Sezan reference does not teach nor suggest a key clip extraction module. Applicants therefore submit that claim 12 is patentably distinguishable over the prior art.

Claim 14 depends from claim 12. Applicants submit that claim 14 is patentably distinguishable over the prior art for the reasons as applied to claim 12. Further, the Sezan

reference does not teach, show nor suggest an inference engine, much less one that uses information downloaded from a web site in its operation.

The Examiner concludes that the prior art made of record and not relied upon is considered pertinent to applicant's disclosure. DeVres discloses an automated system for performing annotations based upon probabilities and associated values within a media stream. Applicants' invention as claimed is directed to identifying key clips and providing references to those key clips to the receiver. While possibly in the same field of endeavor, this reference is not related to Applicants' invention as claimed.

The Altunbasak reference describes a system for object-based video retrieval. This reference does not disclose a data service provider or receiver as claimed by Applicant. It is possible that such a system could be used at the provider end in conjunction with Applicants' invention as claimed, but is not relevant to Applicants' invention.

The Orr reference deals strictly with text extraction and does not contemplate nor discuss extraction of key clips, providing references to key clips or many of the other components that contribute to Applicants' invention as claimed.

The Carrer reference describes a system for annotating video data, not one for extracting key clips and providing program-related information to clients for use in extracting and storing meaningful summaries of the content, as does Applicants' claimed invention. Therefore, Applicant submits that the prior art cited but not relied upon is not relevant to Applicant's disclosure.

No new matter has been added by this amendment. Allowance of all claims is requested.

Respectfully submitted,
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. (Thrice amended) A system for providing a digital television data broadcast service, comprising:

a data service authoring subsystem operable to receive an audiovisual program and to author key clips, wherein key clips are comprised of one of either at least one key event or at least one key object, and provide key clip data in a defined format identifying the key clips of the audiovisual program

a data service encoder operable to receive said key clip data and Program and System Information Protocol data, wherein key clip data includes descriptors that directly correspond to descriptors in the Program and System Information Protocol data, and finalize contents of said data broadcast service; and

an MPEG-2 system multiplexer operable to multiplex said contents of said data broadcast service with encoded audiovisual programs and produce a MPEG-2 transport stream to be broadcast to at least one client receiver in a format that allows customization at the receiver.

8. (Thrice amended) A receiver operable to receive and operate upon a digital television data broadcast service, comprising:

a demultiplexing and decoding module to extract program-related information, wherein the program-related information further comprises an MPEG-2 encoded audiovisual program, Program and System Information Protocol data, and references to key-clips from the digital television data broadcast service;

a summarizer operable to receive the audiovisual program PSIP data and references to key-clips and to create summaries of the audiovisual program, using the references to key-clips to extract the key-clips from the program, wherein the summarizer includes an inference engine operable to combine said audiovisual program description with said PSIP information,

wherein descriptors in the audiovisual program description directly correspond to descriptors in the PSIP information, user preferences, and any other available program information to produce program-related information and key-clip information;

a navigation module operable to allow a user to browse said program-related information;

a short-term memory to allow short-term storage of [at least one of the programs and] the summaries; and

a long-term memory to allow long-term storage of the programs and the summaries, wherein the long-term storage is accessible from the navigation module.

12. (Thrice amended) A program summarizer operable to receive a data broadcast service for filtering and generating summaries of audiovisual programs, comprising:

a description extraction module operable to parse and extract an audiovisual program description provided by said data broadcast service;

a program and system information extraction module operable to extract the program and system information protocol (PSIP) information and MPEG-2 System Information from said data broadcast service;

an inference engine operable to combine said audiovisual program description with said PSIP information, where descriptors in the audiovisual program information directly correspond to descriptors in the PSIP information, user preferences, and any other available program information to produce program-related information and key-clip information;

a key-clip map table operable to take said key-clip information and produce a map of video references and times;

a key clip extraction module operable to extract key clips from said audiovisual program using references to the key clips in the data broadcast service; and

a summary composition module operable to produce summaries of said audiovisual program and provide it to a viewer.